US Army Medical Research and Materiel

Technology Available for Licensing

Antibodies Expressed in Insect Cells

Features and advantages:

- **Provides complete, functional human antibodies**
- **Antibody was shown to bind and neutralize virus**
- **Could be used to generate human antibodies of therapeutic or diagnostic value**
- **Could use to convert IgG2 MAb into an IgG1 MAb to achieve desirable effector functions**

This invention provides a method for the continuous expression of biologically functional human IgG from stably transformed insect cell genomes. The invention includes three vectors which allow the conversion of antibody fragments (Fabs) or single chain vector fragments (Fvs) into full-length antibody molecules.

Fabs are formed when an immunoglobulin molecule is digested by papain. Fabs contain one antigen binding site, one complete light molecular weight chain, and part of a heavy molecular weight chain. The method uses a cassette vector system for conversion of human Fabs from combinatorial libraries to make complete IgG1 monoclonal antibodies (MAbs) in stably transformed insect cells. Convenient restriction enzyme sites located within the vectors provide a rapid direct cloning method. The MAbs use sequences derived from Fabs that are selected from phage display libraries. Using this technology, biologically active full-length MAbs are produced. Efficacy was shown by using the constructs to transform insect cells with genes coding for human MAbs.

Patent Status

cell expression provides a safer means to produce therapeutic proteins since insect cells do not possess factors associated with mammalian cells (e.g., retroviral elements) or bacterial cells (endotoxins) that can be harmful to humans. Transformed insect cells generate a continuous and consistent supply of antibody that is an improvement over the transient baculovirus expression system.

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Point of Contact

Dr. Paul C. Mele
Director, Office of Research and Technology Applications
USAMRMC, ATTN: MCMR-J
504 Scott St., Ft. Detrick, MD 21702-5012
E-mail: usamrmcorta@amedd.army.mil
Voice: 301-619-6664/2065/7219 Fax: 301-619-5034

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